

TRANSLATOR'S STATEMENT

Assistant Commissioner for Patents,  
Washington, D.C.

Sir:

I, Sigrid Sommerfeldt, declare:

That I am thoroughly familiar with the German and English languages;

That I am competent to serve as a translator of German documents into English;

That the attached document represents a true English translation of International application

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Signed this 7<sup>th</sup> day of November, 2005.

Sigrid Sommerfeldt  
Translator

1 pt

Method for the production of geotextiles of melt-spun filaments

The invention relates to a method for the production of geotextiles of melt-spun filaments, wherein the melt-spun continuous filaments are continuously and free of disturbances transported on a screen band across all curing and post-treatment zones.

DE 196 27 256 discloses a method for the hydrodynamic intertwining of filaments of a filament web, in which a multiple needling takes place with alternating guidance of the goods web and the transfer from one to the other transport device takes place through the continuous and strain-free support of the filament web.

For this purpose the filament web is supported during the transport from one bearing surface to the other by an accompanying continuous web.

EP 0 859 076 discloses a device for the hydrodynamic entwining of fibers of a filament web, wherein for the more intense curing in the first needling unit to the continuous web is assigned a continuous web guided in the direction opposite to the continuous web transporting the filament web, and the fiber web is increasingly densified in the conical gap generated between the continuous webs.

Both methods are intended to avoid disturbances in the not yet sufficiently cured filament web.

However, the first disturbances in the filament occur already after the filaments are deposited during the transport to the first curing zone.

The invention addresses the problem of providing a method for the deposition and subsequent hydrodynamic entwining of the filaments, in which a disturbance of the filament web immediately after the deposition of the filaments before the first curing zone is also avoided.

Subject matter of the invention is therefore a method for the production of geotextiles of melt-spun filaments through hydrodynamic intertwining, characterized in that the melt-spun filaments

are deposited on a continuous screen band, are transported on this screen band through the first curing stage, wherein the filaments additionally during the entire process are fixed on the screen band through suction zones and in this way are already sufficiently cured in the first curing stage in order for the transport without transport band to be possible.

The melt-spun filaments are thus initially deposited on the continuous screen band in the conventional manner and on this screen band transported to the first curing stage. The deposited filaments are therein fixed during the transport on the screen band through suction zones such that no disturbances can occur during the transport of the uncured filaments. The air speed of the air taken up is 1-15 m/s.

Depending on the disposition of the curing device, in the first curing stage the water jets act through the screen band and/or the screen band serves as a support.

For the embodiment variant of the curing through the screen band, the filter has a mesh size of 1-8 cm<sup>-1</sup>, preferably 2 - 5 cm<sup>-1</sup>.

If the screen band serves as a support {mat}, the screen band has a mesh size of 10-100 cm<sup>-1</sup>, preferably 20-60 cm<sup>-1</sup>.

After curing in the first curing stage, the geotextile is sufficiently cured, such that it can be guided without disturbances of the structure even without the support of a transport band. However, the filter can optionally also be guided through possible further curing stages.

On the screen band thus the formation of the non-woven material as well as also the curing take place.

Through this method it is possible to avoid any disturbance in the structure of the not yet cured geotextile after it has been deposited.

Therefore complex process controls such as for example the alternate guidance can therefore be avoided.

The geotextiles produced in this manner are distinguished by high homogeneity and uniformity.

Filaments to be considered are all melt-spinnable raw materials, for example polyolefins, such as polypropylene, polyamides or polyesters.

Further subject matter of the invention is an apparatus for the production of geotextiles of melt-spun filaments, characterized in that beneath the deposition apparatus a screen band is guided, on which are applied suction zones and the screen band is guided to the first curing device.

Such apparatus are depicted in Fig. 1 and Fig. 2.

In the drawing depict:

- 1 filament curtain
- 2 uncured non-woven material
- 3 transport zone with suction
- 4 compacting band
- 5 water jet curing unit
- 6 suction
- 7 spinning band
- 8 cured geotextile